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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,694	08/05/2003	Robert L. Memmen	EH-10895 (03-357)	8373
34704	7590	01/11/2006		
BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510			EXAMINER COMPTON, ERIC B	
			ART UNIT	PAPER NUMBER
			3726	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/635,694

Applicant(s)

MEMMEN ET AL.

Examiner

Eric B. Compton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "said removal" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 depends from claim 12 and therefore is also indefinite.

Double Patenting

3. Claim 11 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 14. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. 3,574,924 to Dibble.

Regarding claim 1, Dibble discloses a method for restoring a Ti alloy turbine blade component (10) which has lost first material from a damage site comprising:

physically depositing a Ti-based material (24) at least partially in place of the first material. See Col. 5, lines 18-32.

Regarding claims 2 and 5, the substrate may be machined, e.g., by cutting to remove the damaged area. See Col. 2, lines 50-53.

Regarding claim 3, the Ti-based major replaces a major part of the first material. See e.g., Figures 2-3.

Regarding claim 4, the Ti-based material is Ti-6Al-4V alloy. See Col. 5, line 20.

Regarding claims 6-7, see Figure 1 (the damage site does not appear to be any more than 15% of a span of the airfoil).

6. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. 5,083,014 to Pratt et al.

Regarding claim 1, Pratt discloses a method for restoring a Ti alloy turbine blade (12) component which has lost first material from a damage site comprising:

physically depositing a Ti-based material at least partially in place of the first material. See Example 1, Col. 9, lines 45-62 (disclosing depositing Ti-6Al-4V alloy to repair Ti-6Al-4V substrate).

Regarding claims 2 and 5, the substrate may be machined, e.g., by grinding to remove damaged area. See Col. 7, lines 25-31.

Regarding claim 3, the Ti-based major replaces a major part of the first material.

Regarding claim 4, the Ti-based material is Ti-6Al-4V alloy. See Col. 9, lines 45-62.

Regarding claim 6, see Figure 3 (the damage site does not appear to be any more than 15% of a span of the airfoil).

7. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. 5,111,570 to Baumgarten et al .

Regarding claim 1, Baumgarten discloses a method for restoring a Ti alloy turbine blade component (3) which has lost first material from a damage site comprising:

physically depositing a Ti-based material (6) at least partially in place of the first material. See Col. 2, lines 18-19.

Regarding claim 2, the substrate may be machined, e.g., by drilling to remove the damaged area. See Col. 2, lines 46-47.

Regarding claim 3, the Ti-based major replaces a major part of the first material.

Regarding claim 4, the Ti-based material is Ti-6Al-4V, Ti-6Al-2Sn-4Zr-2Mo, or Ti-8Al-1V-1Mo alloy. See Col. 2, lines 18-19.

8. Claims 1-3, 6-7, 11-12, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 2002/076573 to Neal et al.

Regarding claim 1, Neal discloses a method for restoring a Ti alloy turbine blade component, see [0004] (discussing Ti based alloy), which has lost first material from a damage site (3A) comprising:

physically depositing a Ti-based material (31) at least partially in place of the first material. See [0034] ("The superalloy repair alloy will generally be chosen to be similar in composition to the original composition of the component being repaired.").

Regarding claims 2, the substrate may be machined, to remove the damaged area. See [0026].

Regarding claim 3, the Ti-based major replaces a major part of the first material.

Regarding claims 6-7, see Figure 3 (the damage site does not appear to be any more than 15% of a span of the airfoil).

Regarding claims 11 and 14, the physical vapor depositing comprised electron beam physical vapor deposition. [0032].

Regarding claim 12, see Figure 5A-5B & 6A-6B (showing use of backing element 60).

Regarding claims 15-16, see [0035] (disclosing pressure).

Claim Rejections - 35 USC § 103

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9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Dibble, Pratt, Baumgarten, or Neal.

Dibble, Pratt, Baumgarten, and Neal disclose the inventions cited above.

However, they do not disclose the particular values claimed for the damage site.

It is clearly a fortuitous matter as to where the damage site is formed, its size and depth, depending on the service requirements of a particular turbine blade. The above method clearly can be used for any given damage site.

Regarding claims 8-10, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have repaired the turbine of either Dibble, Pratt, Baumgarten, or Neal, regardless of a particular damage site, in order to repair the site.

11. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neal in view of U.S. Pat. 6,754,955 to Carl, Jr. et al.

Neal discloses the invention cited above. However, the reference does not disclose the using a backing material to form a tip.

Carl discloses a method of repairing a turbine blade tip by building up ^{repair} ~~repair~~ material on a backing plate (26). See Figure. 4.

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Regarding claims 12-13, it would have been obvious to one having ordinary skill in the art at the time the invention was made to performed the build up of material of Neal, in light of the teachings of Carl, in order to repair a tip of a turbine blade.

12. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neal in view of an article entitled "EB-PVD Technology in the Gas Turbine Industry: Present and Future" by Movchan.

Neal discloses the invention cited above. However, the reference does not disclose the particular values claimed for depositing rate.

Movchan disclose EB-PVD technology. It is noted that the average rates for condensation of metals is 50-100 μm / min. Page 40 (third column). The term average suggests that rates are at least known above and beyond. Likewise to go slower is envisioned.

Regarding claims 17-18, it would have been obvious to one having ordinary skill in the art at the time the invention was made to performed the EB-PVD of Neal at the claimed rate, in light of the teachings of Movchan, in order to effectively provide the build up material. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (571) 272-4527. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Jimenez can be reached on (571) 272-4530. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric B. Compton
Primary Examiner
Art Unit 3726

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